of a splendid folio volume, with 30 plates, in which from 1 to 26 contain figures of all the remarkable horns from the Banqueting Hall, and from 27 to 29 represent some of the more interesting of the monstrous horns, while on Plate 30 we have a most extraordinary instance of a pair of horns—one of ten, the other of twelve, points—which had during life got inextricably interlocked with one another. The finest and most characteristic pairs of horns were selected for these photographs, which are by a new process most excellently reproduced on the plates. As a frontispiece to the text we have a photograph of a quaint sketch of the Castle.

About 1861, Dr. Meyer informs us, acting under the direction of Grand Marshall H. von Freisen, a catalogue of the seventy-one horns in the Banqueting Hall, with measurements in inches, was compiled, but unfortunately some of the identifications cannot be regarded as certain. It is strange that, in spite of the great care with which this collection of horns has been kept, there seems to be no record of when and whence the very ancient ones came to Moritzburg. Even the *Archives* of the place are nearly silent about them. Dr. Meyer has in this quite luxurious catalogue done what he could to rescue all that is known about the collection from oblivion, and he promises at some future time to give the history of the remaining two-thirds as a continuation of this work.

OUR BOOK SHELF

Guide to Methods of Insect Life, and Prevention and Remedy of Insect Ravage. By Eleanor A. Ormerod. Pp. 1–167, 8vo. (London: Simpkin, Marshall, and Co., 1884.)

THE text contains the substance of ten lectures delivered for the Institute of Agriculture. At p. 7 there is an italicised remark to the effect that "*insects always begin life by being produced by a female.*" This may be regarded as an indication of the presumably ultra-ignorant class for whose benefit the lectures were prepared. But we prefer to think that far too low an estimate of the knowledge possessed by our agriculturists has been made, and doubt not that, by a majority of them, the remark will be taken as the reverse of complimentary. The book is exceedingly well got up, and in a very attractive style, and will no doubt become popular (on account of the multitude of illustrations. For the agriculturist purely, it seems to us that it goes either not far enough or too far; it is too "showy" for practical purposes, and often, unwittingly, too abstruse. The copious illustrations are mostly excellent, and many of them are original (among the very few very indifferent figures, that of the "Bee-parasite" may be cited). But the necessity for many of the figures in a book apparently intended for the agricultural class may be doubted, and some have evidently been introduced for effect. That American bogey (or "fraud") the "Colorado Beetle," is honoured by the reproduction of his portrait, and the *Phylloxera* is dismissed with only dishonourable mention. The general information is sound, but occasionally vague, as in the definitions of the terms "larva" and "pupa," and in the apparent assumption that respiration is exclusively effected by the external air being conveyed to the tracheæ by means of *spiracles*. The "Glossary" will no doubt be found very useful to the majority of the readers of the book, but some terms (e.g. "*Telum*") appear wonderfully abstruse, as used in a work in which it was necessary to explain that "*insects always begin life by being produced by a female.*"

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.*]

The Remarkable Sunsets

ON Friday, the 11th inst., the weather was very remarkable; it recalled to our minds, though on a smaller scale, the storm of December 12, 1883. In the afternoon, about three o'clock, the wind arose with violence, and great squalls alternated with relative calms. The movements of the clouds were also very curious. Layers of air of different elevation floated in various directions, and the lower very low-hanging clouds which moved at the same level had, at different points of the sky, an unequal and changing rapidity. The wind beneath was, at 6 p.m., west-south-west; the lower clouds came from the west, the more elevated, on the contrary, from the north-north-west, so there is no doubt that whirlwinds blew that day in the upper air. The sun had set with a very fine after-glow, and in the ensuing night and morning there fell, now and then, showers of rain occasionally accompanied by snow and hail. Besides, the night before a magnificent halo had been observed around the moon, so that the presence of ice-crystals on January 11, in the higher regions of the atmosphere, is certain. In consequence of the low temperature, the air in those regions must have had a great density, and so, apparently, there must have been a great chance that the whirlwinds on Friday had moved the heavy, cold air from above downwards.

Fig. 1.

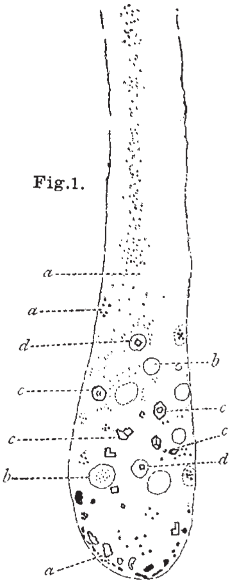

FIG. 1.—Sediment and residue of an evaporated drop of rain, fallen January 12, 1884, on a window-pane. *a a a*, particles of the ash; *b b*, drops of hygroscopic matter; *c c c*, crystals of common salt and andesitous mineral; *d d*, drops with salt crystals.

That this was really the case seems to proceed from the fact that during the night of January 11 and 12 the rain had brought down on my windows the same sediment as that of December 12, though in smaller quantity. The identity of this sediment with the ashes of Krakatoa will now be beyond doubt to any one who has read the numerous communications in NATURE on the remarkable sunsets. Why I wish to refer to this affair once more is that at the microscopic examination of the dust of January 12 I found in it a relatively great quantity of complete individual crystals, partly soluble, partly insoluble, in water, which had remained unobserved by me in December.

After having scraped the dust off the window-panes and put it on the slide in a drop of oil, I made a drawing of the crystals

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by means of the camera lucida, magnifying them 400 times, as represented in Fig. 2.

The crystals, as seen in Fig. 2 *a*, evidently exist in common salt; this follows from their solubility in water, their crystalline form, and their reaction in the flame. They are found in so great a number in the residuum of every drop of rain that we come to the conclusion that these little crystals must be found as such in those regions of the atmosphere where the dust is floating, the air containing there hardly anything else but ice, and surely little liquid water.

In Fig. 2 *b* we see the crystals insoluble in water. They are uncoloured and perfectly transparent, and may be considered to be the crystalline form of the andesitous mineral of which the ashes consist for the greater part.

The residuum of the evaporated rain-drop of January 12 showed itself about in the manner seen in Fig. 1. If the window-pane is used as a slide and the dust examined directly with the microscope, one will find there a great number of little drops (*b b*, Fig. 1), in most of which a very fine sediment is seen of the constituents of the ashes; in a few drops, however, there are to be found crystals of common salt (*d d*); further, many loose crystals spread over the whole space (*c c*). Probably the little drops are due to the presence of some hygroscopic matter such as $MgCl_2$ or $CaCl_2$ around some salt crystals. Especially at the lower end of the whole drop assemble the larger, glassy, black and brown particles of the ashes.

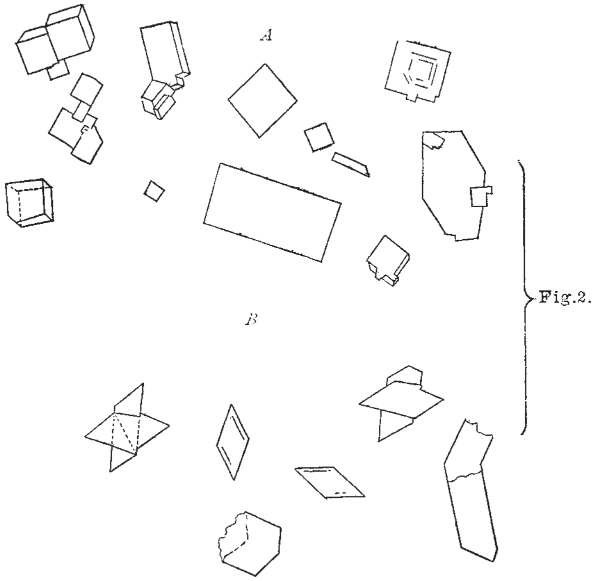

FIG. 2 (× 400).—Crystalline matter in the residue of Fig. 1. *A*, crystals of common salt; *B*, crystals of the andesitous mineral, insoluble in water.

The above proves that during the last few weeks crystals of a particular nature were floating in the air, and will perhaps explain the appearance of mock suns described by some of the observers of the after-glow.

In a sample of original ashes from Krakatoa, when examined in oil, I only found very few salt crystals, and the completely outgrown andesitous crystals not at all. I am, however, convinced that with longer research I should have found the latter, and others seem to have discovered them indeed, but they are without doubt very rare. So it seems to me that it may be taken for granted that in the atmospheric dust the proportionate number of completely formed crystals is larger than in the natural ashes, and the presence of so much common salt in the upper air during these days is surely a remarkable fact.

Wageningen, January 14 M. W. Beyerinck

The atmospheric appearances frequently seen during the last few months, principally at sunrise and sunset, from the similarity of some of the manifestations to auroral appearance, have led some persons to suspect connection of the phenomena with magnetism.

Hitherto auroral exhibitions have, at Greenwich, been invariably accompanied by considerable magnetic disturbance, and the absence of such disturbance on days on which the recent remarkable atmospheric phenomena have been seen at Greenwich seems conclusive as to the question of direct connection with magnetism. The Astronomer-Royal has therefore thought that a brief statement of the circumstances in this respect might be of interest to your readers. It appears that, either at sunrise or sunset, unusual atmospheric appearances were seen at Greenwich on November 8, 9, 13, 25, 26, 27, 28, 29, December 1, 2, 4, 5, 6, 7, 11, 17, and January 12 last. Of these day , on November 13 and January 12 the magnets were quiet, and on November 8, 9, 25, 26, 29, December 4, 5, 6, 7, and 17 very quiet; on November 27, 28, December 1, 2, and 11, there was a little motion. The whole period was quiet generally as regards magnetic activity; only at one time during the period from November 8 to January 12 was there any noteworthy disturbance, which occurred on the days from November 19 to 22, and in no case was it in any degree remarkable. William Ellis

Royal Observatory, Greenwich, January 26

On p. 157 of your current volume you ask your "readers in all parts of the world" to communicate facts relative to the singular sunsets which have been seen.

Until seeing your request I had made no note of dates, but as far as I can trust my memory the "after-glow" was noticed here early in September, 1883. On one night it lasted about two hours after sunset. The phenomenon of "Contrast-Farben" mentioned by von Helmholtz in Nature, December 6, 1883, p. 130, I have noticed most markedly on two occasions—once in October, and again on December 28 or 29, 1883. During this year the sunsets on January 5, 9, 12, and 13, have been accompanied by the "after-glow."

About 12 o'clock on the 13th I saw a peculiar colour in the neighbourhood of the sun, which on closer inspection was seen to be in the form of an ellipse, the major axis being in the plane of the meridian. The length of this axis was about 50°. The sun was situated nearer the upper extremity of this axis, in breadth about 20°. The colour of this ellipse was a pale reddish-violet ashen (if you can imagine such a combination). The sky at the time was a deep blue, except in the ellipse. I suppose the violet tinge was due to a combination of the red of what at evening forms the "after-glow" and the blue sky. There were a few clouds slowly moving from the west, and as one of these approached the sun, when within about 6 diameters of the sun, the edge nearer the sun became coloured a faint yellow; then followed pale pink, dark pink, green, then again dark pink in bands; as the cloud floated over the sun's disk one saw the bands of colour continuous, forming a halo. The clouds were of a fleecy texture; I believe they were "cirro-stratus," not, however, as open as what we call a "mackerel sky," and so tenuous that they did not appreciably diminish the sun's brilliancy. The sunset on this day (January 13) was followed by a most intense "after-glow," but of only short duration. The pink colour was at first in three broad rays, extending about 50° from the point at which the sun disappeared, the central ray almost vertical, one of the others on each side between the central ray and the horizon. After a short time the intermediate spaces became coloured red and then the colour ceased.

The colour itself when most marked I can best describe as that of burning cyanogen gas, a deep peach blossom. I have noticed that the brilliant after-glows here have been preceded by a dazzling glow, elliptical in shape, in the immediate neighbourhood of the sun, the outer edge of this ellipse being comparatively dull and marked, and not having the same colour as the sky a little further removed. The eastern horizon I have also seen tinged pinkish before the colours make their appearance in the west, and so marked has this been that I have regarded it as a sign of the coming after-glow.

I may add that for the last ten days the ground has been covered with snow, and the temperature during the early part of last week quite low, from 15°-20° F. during the day. During the end of the week the temperature was about 32° F.

I have written thus at length, hoping that there may be something of interest to you. Should you find anything it will give me pleasure; should you not, this will at least show you that some of your distant readers would like to aid you in paths which are not their own. W. G. Brown

University of Virginia, U.S.A., January 15

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